

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An isolated antibody which recognizes the amino acid sequence comprising RSATEEEPPNDD of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ enzyme, ~~or an isoform of the amino acid sequence.~~

2. (currently amended): The isolated antibody of claim 1, wherein binding of the antibody to the amino acid sequence, RSATEEEPPNDD, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ increases myocyte intracellular diastolic and systolic calcium.

3. (currently amended): The isolated antibody of claim 1, wherein binding of the antibody to the amino acid sequence, RSATEEEPPNDD, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ exerts a positive inotropic effect in cardiac myocytes.

4. (currently amended): The isolated antibody of claim 1, wherein the antibody is a polyclonal antibody.

5. (currently amended): The isolated antibody of claim 1, wherein the antibody is a monoclonal antibody.

6. (currently amended): The isolated antibody of claim 1, wherein the antibody is a humanized antibody.

7. (currently amended): The isolated antibody of claim 1, wherein the antibody is administered to a patient in an effective therapeutic amount to treat the patient suffering from or susceptible to heart disease and/or muscle contractile disorders.

8. (withdrawn): An antibody which recognizes the amino acid sequence comprising DVEDSYGQQWTYEQR of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ enzyme, of which recognizes an isoform of the amino acid sequence.

9. (withdrawn): The antibody of claim 8, wherein binding of the antibody to the amino acid sequence, DVEDSYGQQWTYEQR, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ increases myocyte intracellular diastolic and systolic calcium.

10. (withdrawn): The antibody of claim 8, wherein binding of the antibody to the amino acid sequence, DVEDSYGQQWTYEQR, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ exerts a positive opic effect in cardiac myocytes.

11. (withdrawn): The antibody of claim 8, wherein the antibody is a polyclonal antibody.

12. (withdrawn): The antibody of claim 8, wherein the antibody is a monoclonal antibody.

13. (withdrawn): The antibody of claim 8, wherein the antibody is a humanized antibody.

14. (withdrawn): The antibody of claim 8, wherein the antibody is administered to a patient in an effective therapeutic amount to treat the patient suffering from or susceptible to heart disease and/or muscle contractile disorders.

15. (withdrawn): A purified peptide comprising the amino acid sequence RSATEEEPPNDD or derivatives or isoform thereof.

16. (withdrawn): The peptide of claim 15, wherein the peptides are administered individually or in combination in a pharmaceutically acceptable carrier to a patient.

17. (withdrawn): A nucleic acid vector encoding an amino acid sequence comprising RSATEEEPPNDD or isoform thereof.

18. (withdrawn): The vector of claim 17, wherein the vector comprises tissue specific promoters.

19. (withdrawn) (presently amended): The vector of claim ~~[[17]]~~ 18, wherein the tissue specific promoters are cardiac tissue specific.

20. (withdrawn): The vector of claim 17, wherein the *in vivo* generated antibodies bind to the amino acid sequence, RSATEEEPPNDD, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$.

21. (withdrawn): The vector of claim 18, wherein binding of the *in vivo* generated antibodies to the amino acid sequence, RSATEEEPPNDD, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ increases myocyte intracellular diastolic and systolic calcium.

22. (withdrawn): The vector of claim 18, wherein binding of the *in vivo* generated antibodies to the amino acid sequence, RSATEEEPPNDD, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ exerts a positive inotropic effect in cardiac myocytes.

23. (withdrawn): The vector of claim 18, wherein the vector is administered to a patient in an effective therapeutic amount to treat the patient suffering from or susceptible to heart disease and/or muscle contractile disorders.

24. (withdrawn): A purified peptide comprising the amino acid sequence DVEDSYGQQWTYEQR or derivative or isoform thereof.

25. (withdrawn): The peptide of claim 24, wherein the peptides are administered individually or in combination in a pharmaceutically acceptable carrier to a patient.

26. (withdrawn): A nucleic acid vector encoding an amino acid sequence comprising DVEDSYGQQWTYEQR.

27. (withdrawn): The vector of claim 26, wherein the vector comprises tissue specific promoters.

28. (withdrawn) (presently amended): The vector of claim [[26]] 27, wherein the tissue specific promoters are cardiac tissue specific.

29. (withdrawn): The vector of claim 26, wherein the *in vivo* generated antibodies bind to the amino acid sequence, DVEDSYGQQWTYEQR, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$.

30. (withdrawn): The vector of claim 27, wherein binding of the *in vivo* generated antibodies to the amino acid sequence, DVEDSYGQQWTYEQR, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ increases myocyte intracellular diastolic and systolic calcium.

31. (withdrawn): The vector of claim 27, wherein binding of the *in vivo* generated antibodies to the amino acid sequence, DVEDSYGQQWTYEQR, of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ exerts a positive inotropic effect in cardiac myocytes.

32. (withdrawn): The vector of claim 27, wherein the vector is administered to a patient in an effective therapeutic amount to treat the patient suffering from or susceptible to heart disease and/or muscle contractile disorders.

33. (withdrawn): A method of generating antibodies, wherein binding of the antibodies to an epitope of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ exerts a positive inotropic effect in cardiac myocytes, comprising:

generating amino acid sequences corresponding to overlapping peptide fragments of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ and variants thereof; and,

obtaining antibodies specific for each peptide fragment by standard methods; and,
determining the effects of the antibodies on intracellular diastolic and systolic calcium levels and cell shortenings as compared to controls.

34. (withdrawn): The method of claim 33, wherein binding of the antibodies to the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ exerts a positive inotropic effect in cardiac myocytes.

35. (withdrawn): The method of claim 34, wherein binding of the antibodies to the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ increases myocyte intracellular diastolic and systolic calcium.

36. (withdrawn): The method of claim 35, wherein binding of the antibodies to the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ increases myocytes contractions as compared to controls.

37. (withdrawn): The method of claim 34, wherein the antibodies generated are polyclonal antibodies.

38. (withdrawn): The method of claim 34, wherein the antibodies generated are monoclonal antibodies.

39. (withdrawn): The method of claim 34, wherein the antibody is administered to a patient in an effective therapeutic amount to treat the patient suffering from or susceptible to heart disease and/or muscle contractile disorders.

40. (withdrawn): The method of claim 34, wherein the antibody is administered to a patient in a therapeutically effective amount to block other molecules from binding to drug-interaction sites of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$, wherein the patient is suffering from or susceptible to arrhythmias, tachyarrhythmias and the like.

41. (withdrawn): The antibodies of claim 40, wherein the antibodies eliminate negative inotropic agents.

42. (withdrawn): A method for diagnosing heart failure and/or contractile disorders comprising:

isolating heart tissue; and,

allowing the binding of inotropic antibodies to epitopes of isolated heart tissue; and,
measuring intracellular diastolic and systolic calcium and cell shortenings.

43. (withdrawn): The method of claim 42, wherein inotropic antibodies binding to epitopes of the α -subunit of $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$ from cells of patients suffering from or susceptible to heart failure and/or contractile disorders will have a lower inotropic effect as compared to healthy individuals.

44. (withdrawn): A method for targeting and blocking the RSATEEEPPNDD site of α -subunit of the $(\text{Na}^+ + \text{K}^+)\text{-ATPase}$, comprising:

contacting a myocyte with a desired molecule; and,

measuring the intracellular diastolic and systolic Ca^{2+} ; and,

measuring cell shortening and heart function; whereby,

identifying molecules useful for therapy of patients suffering from or susceptible to heart disease and other contractile disorders.

45. (withdrawn): The method of claim 44, wherein the desired molecules are administered to patients suffering from and/or susceptible to heart disease and other contractile disorders, an effective therapeutic amount of desired molecules.

46. (withdrawn): A method for targeting and blocking the DVEDSYGQQWTYEQR site of α -subunit of the ($\text{Na}^+ + \text{K}^+$)-ATPase, comprising:

contacting a myocyte with a desired molecule; and,

measuring the intracellular diastolic and systolic Ca^{2+} ; and,

measuring cell shortening and heart function; whereby,

identifying molecules useful for therapy of patients suffering from or susceptible to heart disease and other contractile disorders.

47. (withdrawn): The method of claim 46, wherein the desired molecules are administered to patients suffering from and/or susceptible to heart disease and other contractile disorders, an effective therapeutic amount of desired molecules.